



DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION  
WASHINGTON, D.C.

Revision: ORIGINAL  
Date: 09/01/83

M A S T E R   M I N I M U M   E Q U I P M E N T   L I S T

CONSOLIDATED-VULTEE 28-5ACF

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Control Page

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#### Highlights of Change

EFFECTIVE ABOVE DATE, the Consolidated-Vultee 28-5ACF Master Minimum Equipment List (MMEL) is issued. Retain this sheet with your MMEL until a revision is issued.

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Notes and Definitions

1. The Chapter Numbers are based on Air Transport Association (ATA) Specification Number 100 and Items are numbered sequentially.
2. "Item" means the equipment component, system, or function listed in the Item Column.
3. "(if installed)" in the Item Column indicates that the listed item of equipment is not applicable to all models or configurations. It does not imply that the airplane may be operated in accordance with this MMEL with the item removed.
4. The center column of the MMEL form is utilized as follows:  
  
Column 2    NUMBER INSTALLED  
The number (quantity) of items normally installed on the airplane is listed.  
  
Column 3    NUMBER REQUIRED FOR DISPATCH  
The minimum number (quantity) of items required for operation, in accordance with the MMEL, is listed. This will usually be the number installed less the maximum number that may be inoperative.
5. Dash - symbol in Column 2 or 3 indicates a variable number (quantity) installed or required for dispatch.
6. Tie ) symbol in Column 1 is used to connect two or more listed items of equipment and indicates that the remarks in Column 2 apply to each of the items independently.
7. Asterisk \* symbol in Column 2 ("Remarks") indicates that the listed item of equipment, if inoperative, must be placarded to inform the crewmembers of the equipment condition. Unless otherwise specified herein, placard wording and location will be determined by the operator.
8. (O) symbol in Column 2 ("Remarks") indicates a crew operating procedure.  
  
(M) symbol in Column 2 ("Remarks") indicates a maintenance procedure.

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Notes and Definitions

Both symbols, used singly or in combination, require appropriate procedures be established, published, and complied with if flight is accomplished with the listed item of equipment inoperative.

9. The number stated in Column 3 ("Remarks") is the maximum number (quantity) of item(s) that may be inoperative. Any lesser number may be inoperative unless otherwise specified. There is no restriction on which of these item(s) may be inoperative unless otherwise specified.
10. The o symbol in Column 3 ("Remarks") indicates a proviso (requirement) that must be complied with for dispatch or continued operation with the listed item of equipment inoperative.
11. NOTE: in Column 3 ("Remarks") indicates additional information and references for crewmember or maintenance consideration. Notes are not a part of the provisos.
12. References given in Column 3 ("Remarks"), for example (See 30-3) and (See AFM Limitations), are to bring attention to certain interrelationships between the subject item and other MMEL items or AFM material. These references are intended to assist with compliance, but do not relieve the operator of the responsibility for determining such interrelationships as stated in the Preamble.
13. A vertical bar (change bar) in the margin indicates a change, addition or deletion in the adjacent text for the current revision of that page only. The change bar is dropped at the next revision of that page.

A change bar adjacent to a page number indicates that the page was renumbered only and that no change was made in the text.

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Notes and Definitions

14. Definitions for the purpose of this MMEL:

- a. "Federal Aviation Regulations (FAR)" means the applicable portions of the Federal Aviation Act and Federal Aviation Administration Regulations in force during the flight.
- b. "As required by FAR" means that the listed item of equipment is subject to certain provisions (restrictive or permissive) expressed in the Federal Aviation Regulations Operating Rules. The required minimum number of these items must be operative. The number of these items installed that are in excess of the minimum requirement may be inoperative if provided for in the MMEL.
- c. "Inoperative" means a condition in which a listed item of equipment is malfunctioning to the extent that it does not accomplish its intended purpose or is not consistently functioning within its designed operating limits or tolerances.
- d. "Time in service" is as defined in FAR Part 1. Where a proviso includes a time in service limitation, the time will start at the next takeoff after discovery that the item has become inoperative.
- e. "Repair" means such maintenance action, including replacement, as necessary to restore an inoperative item to an operative condition.
- f. "Visual Flight Rules (VFR)" is as defined in FAR Part 91.105.
- g. "Visual Meteorological Conditions (VMC)" - The atmospheric environment is such that would allow the flight to proceed under the visual flight rules applicable to the flight. This does not preclude a pilot from filing an IFR flight plan and then conducting the flight in accordance with visual flight requirements.
- h. "Icing Conditions" means an atmospheric environment that may cause ice on the airplane or in the engine(s).



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Notes and Definitions

- i. "Secured" and "deactivated" mean that the specified component must be put into an acceptable condition for safe flight. An acceptable method of securing or deactivating must be established by the operator.
- j. "Affected" refers to the subject item of equipment (component, system or function) listed in the Item Column.
- k. "Associated" refers to a related component, system or function other than the subject one.
- l. "System" means the group of directly related components which together perform a specified function; for example, "RPM Indicating System" would include the RPM indicator, tachometer generator, circuit breaker, and associated circuitry.

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Preamble

If some deviations from the type certificated configuration and equipment required by the operating rules were not permitted, the aircraft could not be flown unless all such equipment was operable. Experience has proven that the operation of every system or component installed on the aircraft is not necessary when the remaining operative instruments and equipment provide continued safe operations. Therefore certain deviations from these requirements are authorized to permit continued or uninterrupted operation of the aircraft. The Federal Aviation Regulations permit the publication of a MINIMUM EQUIPMENT LIST (MEL) designed to provide owners/operators with the authority to operate an aircraft with certain items or components inoperative provided the Administrator finds an acceptable level of safety maintained by appropriate operations limitations, by a transfer of the function to another operating component or by reference to other instruments or components providing the required information.

For the sake of brevity, the MEL does not include obviously required items such as wings, rudders, flaps, engines, landing gear, etc. Also, the list may not include items which do not affect the airworthiness of the aircraft, such as galley equipment, entertainment systems, passenger convenience items, etc. However, it is important to note that ALL ITEMS WHICH ARE RELATED TO THE AIRWORTHINESS OF THE AIRCRAFT AND NOT INCLUDED ON THE LIST ARE AUTOMATICALLY REQUIRED TO BE OPERATIVE.

Unless otherwise specified in the remarks column, the FAA does not define "where" or "when" an inoperative item is to be repaired or replaced; but rather indicates through approval of MELs those instruments and items of equipment that may be inoperative for certain flight conditions with the intent that no flight can take off from an airport with inoperative equipment other than specified. The failure of instruments or items of equipment in excess of those allowed to be inoperative by the MEL causes the aircraft to be unairworthy. The FAA makes no distinction in the MEL for dispatch or operation of a flight between points of origin and termination, including intermediate stops or flights beyond the scheduled termination of the flight. The MEL was never intended to provide for continued operation of the aircraft for an indefinite period with inoperative items. The basic purpose of the MEL is to permit the operation of an aircraft with inoperative equipment within the framework of a controlled and sound program of repairs and parts replacement. It is important that the owner/operator make repairs

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at the first airport where repairs or replacements may be made but, in any case, repair should be accomplished at the terminating airport, since additional malfunctions may require the aircraft to be taken out of service.

Owners/operators are responsible for exercising the necessary operational control to assure that no aircraft is dispatched or flown with multiple MEL items inoperative without first determining that any interface or interrelationship between inoperative systems or components will not result in a degradation in the level of safety and/or undue increase in crew workload.

The exposure to additional failures during continued operation with inoperative systems or components must also be considered in determining that an acceptable level of safety is being maintained. The MEL may not deviate from requirements of the AFM limitations section, emergency procedures or airworthiness directive unless the airworthiness directive or AFM provides otherwise.

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23-1

1.		2. NUMBER INSTALLED		
SYSTEM & SEQUENCE NUMBERS	ITEM			3. NUMBER REQUIRED FOR DISPATCH
				4. REMARKS OR EXCEPTIONS
23.	COMMUNICATIONS			
1.	VHF Communications	-	-	*As required by FAR; or  *(O)One transmitter and two independent receivers are required for all operations. One of the required receivers may be a VHF Navigation receiver provided:  o If the number 1 (Captain's) transmitter or receiver is inoperative, the flight shall be restricted to VMC, and  o The aircraft shall not depart an airport where repairs or replacements can be made, and shall not exceed 15 hours time in service.
2.	Static Dischargers	-	-	One may be missing from each control surface.

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24-1

1. | 2. NUMBER INSTALLED

SYSTEM &  
SEQUENCE  
NUMBERS

ITEM

### 3. NUMBER REQUIRED FOR DISPATCH

4. REMARKS OR EXCEPTIONS

## 24. ELECTRICAL POWER

## 1. Generators

2

1

\* (M) One may be inoperative provided:

- o The flight is conducted in day VMC, and

- o The inoperative generator is removed and cover plate installed.

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25-1

1. | 2. NUMBER INSTALLED

SYSTEM &  
SEQUENCE  
NUMBERS

ITEM

### 3. NUMBER REQUIRED FOR DISPATCH

4. REMARKS OR EXCEPTIONS

25. EQUIPMENT AND  
-----  
FURNISHINGS

1. Crewmember Shoulder  
Harness

— | —

\*As required by FAR. If a harness becomes inoperative, the aircraft may continue the flight or series of flights, but shall not depart an airport where repairs or replacements can be made.

2. "FASTEN SEAT BELT  
WHILE SEATED" Signs  
and Placards

— | —

\*One or more signs or placards may be illegible or missing provided:

- o A legible sign or placard is readable from each occupied passenger seat.



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26-1

1.	2. NUMBER INSTALLED
----	---------------------

SYSTEM &  
SEQUENCE  
NUMBERS

ITEM

### 3. NUMBER REQUIRED FOR DISPATCH

4. REMARKS OR EXCEPTIONS

## 26. FIRE PROTECTION

# 1. Firewall Shutoff System

2

2

Must be operative.

## 2. Power Plant Fire Extinguishing System

1

1

Must be operative.

### 3. Portable Fire Extinguisher

—

—

As required by FAR.

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28-1

1. | 2. NUMBER INSTALLED

SYSTEM &  
SEQUENCE  
NUMBERS

ITEM

### 3. NUMBER REQUIRED FOR DISPATCH

4. REMARKS OR EXCEPTIONS

## 28. FUEL

\_\_\_\_\_

## 1. Fuel Quantity Indicators

—

1

\* (O&M) One may be inoperative provided:

- o The fuel tank is dip sticked prior to each flight to determine actual quantity.

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30-1

1. | 2. NUMBER INSTALLED

SYSTEM &  
SEQUENCE  
NUMBERS

ITEM

### 3. NUMBER REQUIRED FOR DISPATCH

4. REMARKS OR EXCEPTIONS

## 30. ICE AND RAIN

## PROTECTION

## 1. Windshield Wipers

$$2 \quad | \quad 0$$

\*One or both may be inoperative provided:

- o No operation are conducted on water, and

- o No operations are conducted into precipitation within 5 NM of the airport of takeoff or intended landing.

## 2. Pitot Heaters

$$2 \quad | \quad 1$$

\*One may be inoperative provided:

- o Flight is conducted in VMC.

- o No operations are conducted into icing conditions or visible moisture.

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33-1

1. | 2. NUMBER INSTALLED

SYSTEM &  
SEQUENCE  
NUMBERS

ITEM

### 3. NUMBER REQUIRED FOR DISPATCH

4. REMARKS OR EXCEPTIONS

### 33. LIGHTS

## 1. Landing Lights

2 | 0

\*May be inoperative for day  
operation.

## 2. Anti-Collision Light System

1 | 0

\*May be inoperative for day  
operation.

### 3. Position Light System

1 | 0

\*May be inoperative for day  
operation.



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34-1

1. SYSTEM & SEQUENCE NUMBERS		2. NUMBER INSTALLED		3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
ITEM					
34.	NAVIGATION				
1.	Airspeed Indicator	2	1)		One each of Items 34-1 through 34-6 may be inoperative provided: o The flight is conducted in day VMC, and o One pilot station has one of each instrument operating normally.
2.	Altimeter, Sensitive	2	1)		
3.	Horizon Indicator	2	1)		
4.	Direction Gyro	2	1)		
5.	Rate of Climb Indicator	2	1)		
6.	Turn and Bank Indicator	2	1)		
7.	Magnetic Compass	1	1		Must be operative.
8.	Outside Air Temp Gauge	1	1		Must be operative.
9.	Pitot/Static System				
	a. Normal Source	2	2		Must be operative.
	b. Alternate Source	1	1		
10.	Distance Measuring Equipment (DME)	1	0		*As required by FAR.
11.	VHF Nav System (VOR/ILS)	2	-		*As required by FAR.
12.	Radio Compass (ADF)	-	-		*As required by FAR.
13.	Marker Beacon	-	-		*As required by FAR.
14.	ATC Transponder	1	0		*As required by FAR.

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35-1

1.	2. NUMBER INSTALLED
----	---------------------

SYSTEM &  
SEQUENCE  
NUMBERS

ITEM

3. NUMBER REQUIRED FOR DISPATCH

4. REMARKS OR EXCEPTIONS

## 35. OXYGEN

1. Portable Oxygen  
Cylinders

— | —

As required by FAR.

## 2. Passenger Oxygen System

1 | C

As required by FAR.

| | | | |

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37-1

1. | 2. NUMBER INSTALLED

SYSTEM &  
SEQUENCE  
NUMBERS

ITEM

### 3. NUMBER REQUIRED FOR DISPATCH

4. REMARKS OR EXCEPTIONS

### 37. VACUUM/PRESSURE

## 1. Vacuum Pumps

2

1

\*One may be inoperative in day VMC.

| | | | |

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77-1

1. | 2. NUMBER INSTALLED

SYSTEM &  
SEQUENCE  
NUMBERS

ITEM

### 3. NUMBER REQUIRED FOR DISPATCH

4. REMARKS OR EXCEPTIONS

## 77. ENGINE INDICATING

## 1. Tachometers

2

2

Must be operative.

## 2. Manifold Pressure Indicator

2

2

Must be operative.

3. Carburetor Air Temp  
Indicator

2

1

\*One may be inoperative provided:

- o Flight is made in day VMC, and

- o Aircraft not operated in icing conditions or visual moisture.

4. Cylinder Head Temp Indicator

2

1

\*One may be inoperative provided:

- o The associated oil temp indicator is operative.



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1. | 2. NUMBER INSTALLED

SYSTEM &  
SEQUENCE  
NUMBERS

ITEM

### 3. NUMBER REQUIRED FOR DISPATCH

4. REMARKS OR EXCEPTIONS

79. OIL

1. Oil Pressure Indicator

2

2

Must be operative.

## 2. Oil Pressure Warning Lights

2

1

\*One may be inoperative provided:

- o The associated oil pressure indicator is operative.

### 3. Oil Temperature Indicators

2

1

\*One may be inoperative provided:

- o The associated Cylinder Head Temp indicator is operative, and

- o The associated Oil Pressure Indicator is operative.

| | | | |

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